



Namskaket Creek Subwatershed

Brewster, Orleans, Cape Cod, Massachusetts

The Namskaket Creek Subwatershed is located Brewster and Orleans. It has an area of 2,100 acres. Namskaket Creek leads into Cape Cod Bay. The subwatershed has some development along Route 6A and residential development in other areas but is dominated by Nickerson State Park. A portion of this subwatershed along the coastline falls within the Inner Cape Cod Bay Area of Critical Environmental Concern (ACEC).

The ACEC was designated in 1985 and is 2,550 acres in size, most of which is northeast of this subwatershed. Within the entire ACEC are almost 900 acres of salt marsh, hundreds of acres of highly productive shellfish beds, extensive undisturbed wildlife habitat, barrier beaches, salt ponds, and tidal rivers and creeks. The nine barrier beaches within the ACEC act as natural storm buffers to protect landward areas. Several areas of historical interest from early settlements are listed with the Massachusetts Historic Commission. The area is noted for its pristine character, including feeding and nesting grounds for the endangered diamond-back terrapin and important breeding, feeding, and nesting areas for over 80 species of birds as well as many species of mammals.

Nickerson State Park encompasses almost 2,000 acres in the Brewster area. It is one of the few parks that has oceanfront as well as inland lakes and ponds. The park has an amphitheater, eight miles of roads, hiking trails, an eight-mile bike path that connects to the Cape Cod Rail Trail, ponds stocked with year-round trout, and 418 campsites. The campsites remain full during the summer months.

A two-year study of the toxic cyanobacteria *Oscillatoria* in Cliff Pond concluded in 2000 that it thrives only around clumps of freshwater mussels. The bacteria is present in the pond year-round. The study was conducted after two dogs died in December 1998 after running on the southern shoreline of the pond.

Approximately 75% of Brewster has municipal water. The subdivisions off of Slough Road in the southwest portion of the town, Crowell Bog Road between Route 124 and 137, and the middle section of Great Fields do not have municipal water. Well #4 was closed due to magnesium and iron in the water and a treatment plant built to address the problem is nearly complete (Spring 2002). The town plans to have water available to virtually all areas within the next five years and will put in a fifth well in the next few years. Most of Orleans has municipal water and the town plans to begin construction of an iron and manganese treatment plant in the end of 2002 to treat water from wells that is currently unpalatable.

There are no public sewers in Brewster or Orleans. Orleans is developing a management plan to comprehensively assess options for controlling the amount of nitrogen coming from wastewater systems throughout the town. The Tri-Town Septage Treatment Facility discharges to groundwater in this subwatershed.

Studies conducted by the USGS on the effects of the facility's wastewater discharge to the nearby Namskaket Marsh reveal that the plume of treated water is flowing wide of the marsh and deep enough not to have an impact on drinking water. If the plume continues on its present path, it will keep flowing to Cape Cod Bay, reaching it in several decades.

Stewards:

- Orleans Water Quality Monitoring Task Force
- Friends of Nickerson State Park
- Brewster Ponds Water Quality Stewards (formed May 2002)

Studies conducted in the subwatershed:

- Study of the cyanobacteria *Oscillatoria* in Cliff Pond. 1998-2000.
- Namskaket Marsh Studies Relating to Discharge of Treated Septage, by the USGS and SMAST. A large study has been ongoing within the upper watershed and salt marsh of Namskaket Creek and has resulted in numerous publications and technical reports.
- Phase II Priority Land Acquisition Assessment Project conducted by the Cape Cod Commission. March 2001. Brewster Property Tract 39 was evaluated for its suitability for future water supply sites.
- Brewster Priority Open Space Project – 2001. The Compact of Cape Cod Conservation Trusts. Created a ranking list of undeveloped parcels that, if acquired as open space, would protect the most important natural resource areas in Brewster. 266 parcels were located, mapped, and evaluated. 20% of these parcels are near Nickerson or Punkhorn Parks.
- Orleans Priority Open Space Project – 2001. The Compact of Cape Cod Conservation Trusts. Created a ranking list of undeveloped parcels that, if acquired as open space, would protect the most important natural resource areas in Orleans.
- Cape Cod Atlas of Tidally Restricted Salt Marshes. 2001. Cape Cod Commission.
- Namskaket Creek was selected as a priority area for Year 2 of the Massachusetts Estuaries Project, funded by the state and UMass Dartmouth. The goal of the project is to develop critical nutrient loading thresholds for each embayment to aid in water resources planning and which will support federal requirements for the development of Total Maximum Daily Loads for impaired surface waters. This area will be evaluated in 2003.

Who is collecting water quality data and where:

- Nickerson State Park staff test Cliff Pond for the presence of *Oscillatoria* bacteria throughout the summer.
- Volunteers in Brewster Ponds Water Quality Stewards conduct dissolved oxygen, temperature and water clarity tests bi-weekly and collect water samples monthly and deliver to the North Atlantic Coastal Laboratory for analysis. Samples are collected from Cliff, Flax, Little Cliff, and Higgin's Ponds.
- Volunteers from the Town of Orleans – Bakers Pond
- The United States Geological Survey maintains a stream flow gauge in the Namskaket Marsh system, collecting data that will be used in the Massachusetts Estuaries Project.

Management actions taken:

- Namskaket Marsh/Cape Cod Rail Trail Salt Marsh Restoration Project was accepted under the GROWetlands Initiative of the Massachusetts Wetlands Restoration Program (2001). 10 acre salt marsh on the Cape Cod Rail Trail. Estimated cost \$114,000. Received a \$45,000 National Coastal Wetlands Conservation Grant from US Fish and Wildlife Service. Remainder of funding will likely come from Department of Conservation and Recreation and other CWRP partners. Construction of replacement twin culverts – December 2002.
- Massachusetts Division of Fisheries and Wildlife stocks Cliff and Flax Ponds with rainbow, brook, and brown trout.

Subwatershed facts: (For data sources see Appendix)

- 21 E sites: 2, located on Salty Ridge Road in Orleans, and at Cape Cod Ready Mix on Route 6A in Brewster
- Solid waste sites: none
- Zone IIs located in this watershed: 3
- Interim Wellhead Protection Areas (IWPAs): 2
- Percent of the undeveloped land that is protected (according to 1985/1990 data): 54.9%
- Acres of existing wetlands: 252
- Certified vernal pools: 1
- Named freshwater ponds: Koeler, Flax, Owl, Lee's, Vesper's, Cliff, Ruth (*Brewster*)
- Named rivers or creeks: Namskaket Creek, Little Namskaket Creek
- Outstanding Resource Waters: Namskaket Creek, Little Namskaket Creek
- 1998 Massachusetts 303(d) List of Impaired Waterbodies: Namskaket Creek, from the source to the mouth at Cape Cod Bay; and Little Namskaket Creek, from the source to the mouth at Cape Cod Bay – pathogens.
- Shellfish growing areas: Namskaket Creek is prohibited to shellfishing.
- This watershed contains Natural Heritage and Endangered Species Program (NHESP) Estimated Habitats of Rare Wildlife.

Priorities:

- Support the protection of parcels in Brewster identified by the Compact of Cape Cod Conservation Trusts as priority undeveloped lands for open space preservation.
- Identify and certify vernal pools in Brewster.
- Conduct a townwide study of wastewater management in Orleans by 2003 to decide the best solution for each part of town (from the Orleans Local Comprehensive Plan).
- Expand water quality monitoring program of the Brewster Pond Quality Stewards to include sampling of all ponds in Brewster.
- Develop funding partnerships with the between the Town of Brewster and the Brewster Conservation Trust, state and federal agencies, and land donations by private landowners in order to achieve their goal of preserving half (2,900 acres) of remaining open space.
- Implement those salt marsh restoration projects identified in the 2001 *Cape Cod Atlas of Tidally Restricted Salt Marshes* that have been evaluated and prioritized by the town. Sites are: Cape Cod Rail Trail restriction of Namskaket Creek (Site BR-7/OR-1) and another Cape Cod Rail Trail restriction of Manskaket Creek (OR-2). Just east of this subwatershed is the Namskaket Road restriction of Little Namskaket Creek (OR-3).
- Acquire open space. Parcels considered a priority for acquisition for water supply protection and development: Brewster Tracts 8, 10, 12, 14, 16, 17, 21, 22, 27, 29, 30, 31, 34, 36, 39, 40, and 41 were ranked as having medium or high water supply development potential in the Cape Cod Commission's *Priority Land Acquisition Assessment Project* (April 1999). These tracts are located throughout the Town of Brewster.

Recreation:

Camping areas:

- 418 campsites in Nickerson State Park
- Youth Forestry Camp

Golf courses:

- Ocean Edge Golf Course

Pathways and trails:

- Cape Cod Rail Trail, additional trails in Nickerson
- www.capecodcommission.org/pathways/trailguide.htm

Public access:

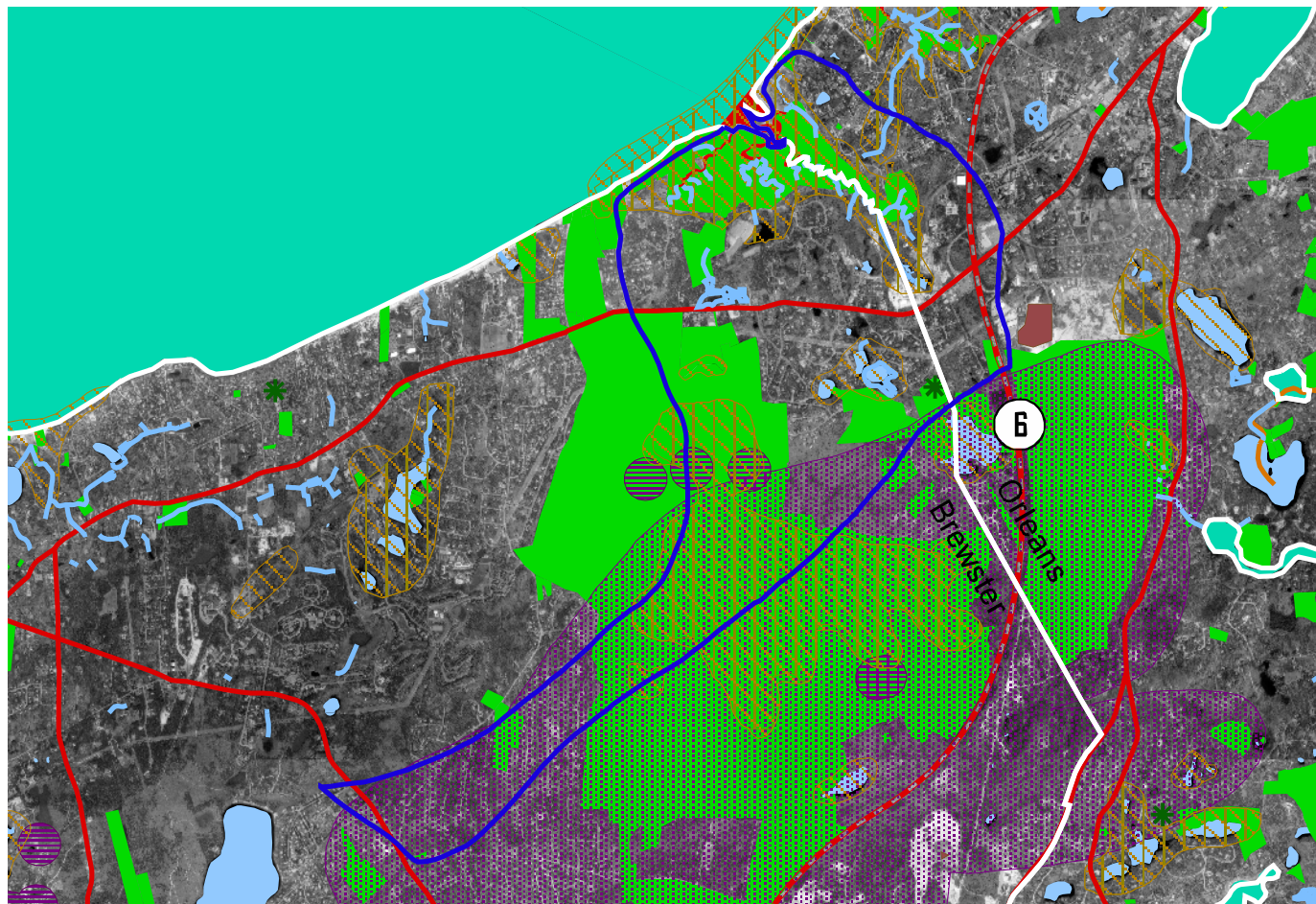
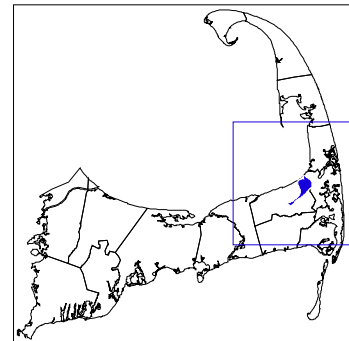
- www.state.ma.us/dfwele/pab/pabSEmap.htm

Public beaches and landings:

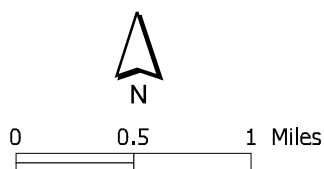
- Flax Pond Beach, Cliff Pond Beach, Baker's Pond Beach, Crosby Landing Beach

Namskaket Creek

Brewster and Orleans, MA



Watershed Resources



Natural Heritage and Endangered Species Program Data

- Certified Vernal Pool
- Priority Habitats of Rare Species
- Estimated Habitats of Rare Species

Groundwater Protection Areas

- Interim Wellhead Protection Area
- Zone II

Solid Waste Facility

Watershed Boundary

Anadromous Fish Run

Shellfish Growing Areas

- APPROVED
- CONDITIONALLY APPROVED
- MANAGEMENT CLOSURE
- PROHIBITED
- RESTRICTED

Open Space

Streams

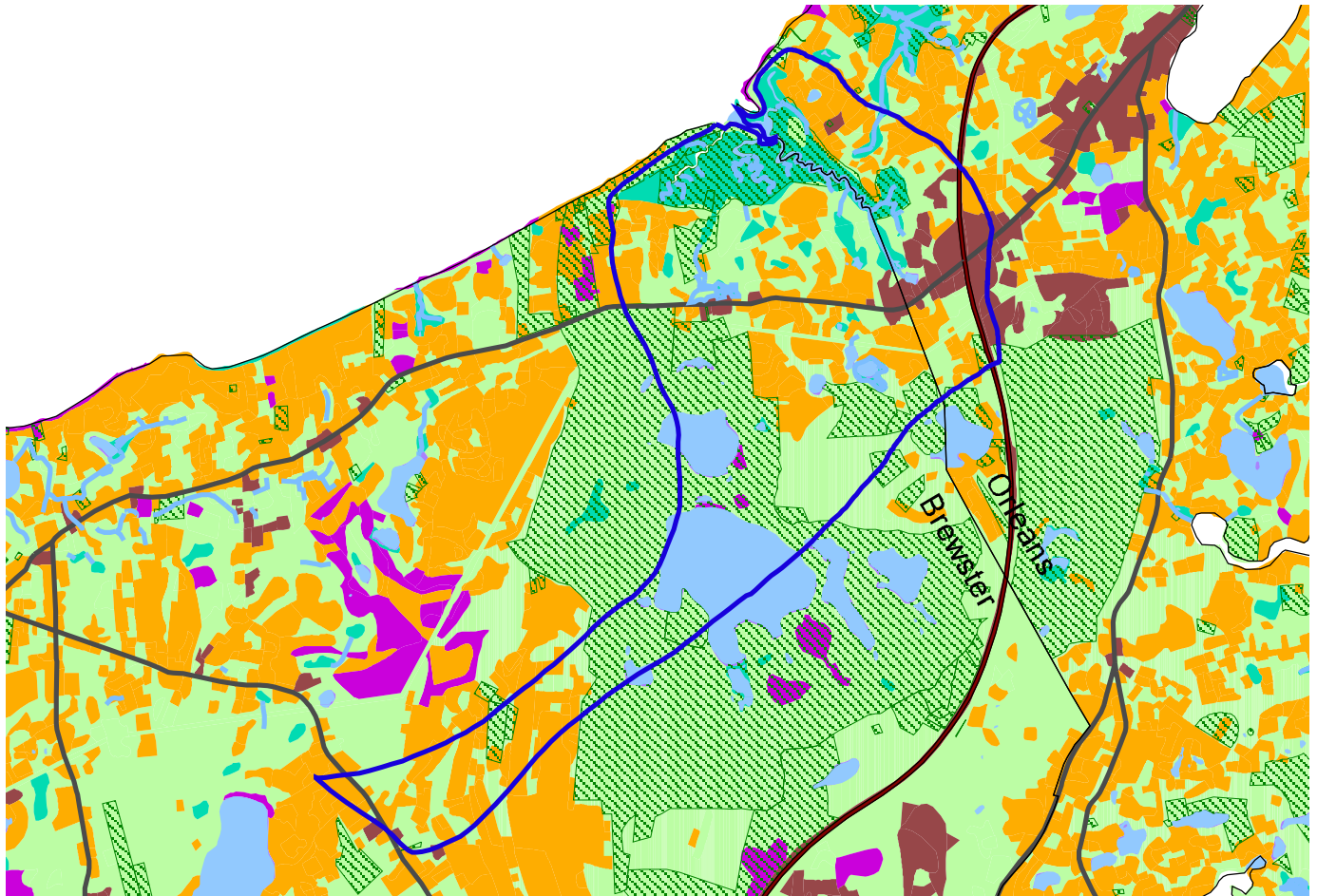
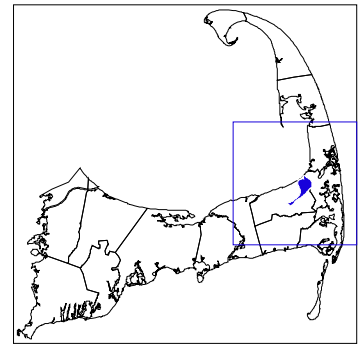
Ponds

Roads

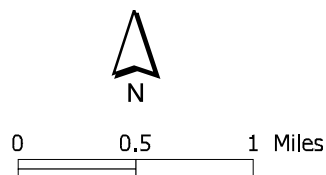


Namskaket Creek

Brewster and Orleans, MA



Land Use



Land Use

